

## CLAIMS

What is claimed:

- 1           1.       A method comprising:  
2                   engaging a first contact on a motherboard with a second contact on  
3       an electronic package, a portion of one of the first and second contacts being  
4       covered with an interlayer that has a lower melting temperature than the first and  
5       second contacts; and  
6                   bonding the first contact to the second contact by melting the  
7       interlayer to diffuse the interlayer into the first and second contacts, the bonded first  
8       and second contacts having a higher melting temperature than the interlayer before  
9       melting.
  
- 1           2.       The method of claim 1 wherein bonding the first contact to the  
2       second contact includes exposing the interlayer and the first and second contacts to  
3       an environment having a temperature greater than the melting temperature of the  
4       interlayer but below the melting temperature of the first and second contacts.
  
- 1           3.       The method of claim 2 wherein exposing the interlayer and the first  
2       and second contacts to an environment having a temperature greater than the  
3       melting temperature of the interlayer but below the melting temperature of the first  
4       and second contacts includes maintaining the interlayer and the first and second  
5       contacts within the environment until a portion of the interlayer diffuses into the  
6       first and second contacts.
  
- 1           4.       The method of claim 3 wherein maintaining the interlayer and the  
2       first and second contacts within the environment until a portion of the interlayer  
3       diffuses into the first and second contacts includes maintaining the interlayer and the

4 first and second contacts within the environment until a majority of the interlayer  
5 diffuses into the first and second contacts.

1 5. The method of claim 4 wherein maintaining the interlayer and the  
2 first and second contacts within the environment until a majority of the interlayer  
3 diffuses into the first and second contacts includes maintaining the interlayer and the  
4 first and second contacts within the environment until the interlayer is substantially  
5 diffused into the first and second contacts.

1 6. The method of claim 2 wherein exposing the interlayer and the first  
2 and second contacts to an environment includes exposing the interlayer and the first  
3 and second contacts to the environment for a period of time.

1 7. The method of claim 6 wherein exposing the interlayer and the first  
2 and second contacts to the environment for a period of time includes exposing the  
3 interlayer and the first and second contacts to the environment until the interlayer  
4 melts and then solidifies within the first and second contacts.

1 8. The method of claim 1 wherein engaging a first contact on a  
2 motherboard with a second contact on an electronic package includes pressing the  
3 first contact against the second contact.

1 9. The method of claim 1 wherein bonding the first contact to the  
2 second contact includes exposing the interlayer and the first and second contacts to  
3 an environment having a temperature less than 125 degrees Centigrade.

1 10. The method of claim 1 further comprising covering the portion of  
2 one of the first and second contacts with the interlayer.

1           11.     The method of claim 10 wherein covering the portion of one of the  
2 first and second contacts with the interlayer includes covering a portion of both of  
3 the first and second contacts with the interlayer.

1           12.     The method of claim 10 wherein covering the portion of one of the  
2 first and second contacts with the interlayer includes covering all exposed portions  
3 of one of the first and second contacts with the interlayer.

1           13.     The method of claim 10 wherein covering the portion of one of the  
2 first second contacts includes electroplating the interlayer onto the portion of one of  
3 the first and second contacts.

1           14.     An electronic assembly comprising:  
2                   a motherboard that includes a first contact;  
3                   an electronic package that includes a second contact bonded to the  
4 first contact; and  
5                   an interlayer diffused within the first and second contacts such that  
6 the bonded first and second contacts have a higher melting temperature than the  
7 interlayer before being diffused into the first and second contacts.

1           15.     The electronic assembly of claim 14 wherein the first and second  
2 contacts are both made from the same material.

1           16.     The electronic assembly of claim 14 wherein the interlayer is  
2 uniformly diffused within the first and second contacts.

1           17.     The electronic assembly of claim 14 wherein the first contact is a pad  
2 and the second contact is a ball.

1           18.     The electronic assembly of claim 14 wherein the bonded first and  
2     second contacts have a melting temperature greater than 150 degrees centigrade.

1           19.     The electronic assembly of claim 14 wherein the electronic package  
2     includes a processor.

1           20.     An electronic system comprising:  
2                   a bus;  
3                   a memory coupled to the bus; and  
4                   an electronic assembly coupled to the bus, the electronic assembly  
5     including a motherboard having a first contact and an electronic package having a  
6     second contact bonded to the first contact, the electronic assembly further including  
7     an interlayer diffused within the first and second contacts such that the bonded first  
8     and second contacts have a higher melting temperature than the interlayer.

1           21.     The electronic system of claim 20 further comprising a voltage  
2     source electrically coupled to the electronic package.

1           22.     The electronic system of claim 20 wherein the electronic package  
2     includes a processor and the voltage source supplies power to the processor.